

## Memorandum

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<b>Date</b>	March 22, 2023
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<b>Subject</b>	San José Airport Connector Potential Ridership Update

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### 1. Introduction

This memo provides an update of the Rough Order of Magnitude (ROM) of potential ridership originally presented in Section 3 of the Automated Guideway Transit Study Final Report, March 2017. The update focuses on potential ridership for a proposed San José Diridon Station (Diridon Station) to Norman Y. Mineta International Airport (Airport) connection (the Connector). The preferred proposer(s) may choose to use the potential ridership figures presented in this report for first phase of the PDA for the development of the Prefeasibility Report. It is intended that for the second phase of the PDA, these report figures may be either used as a basis for an alternative study, or not used at all by the selected preferred proposer, creating their new potential ridership figures entirely.

The following assumptions have been used in developing the potential ridership:

- The planning horizon year for the demand is 2040.
- The Connector network will provide a dedicated link between Diridon Station and the Airport.
- The ridership estimates consider service between the Airport and Diridon Station. For the purposes of determining future potential demand, it is assumed that in addition to Caltrain, Altamont Corridor Express (ACE) and Amtrak; that California High Speed Rail will also serve Diridon Station, opening up the Airport to markets within the Central Valley.

### 2. Project Description

The City of San José (City) seeks to develop a three-to-four-mile Automated Guideway Transit (AGT) solution that connects the Airport to Diridon Station near Downtown San José. The primary goal of the Connector is to establish a connection between the Airport and Diridon Station, the regional transit

network, which includes Caltrain, ACE, Amtrak, VTA Light Rail, BART and potentially California High Speed Rail.

It may include an optional segment connecting Terminal B with Terminal A and parking facilities at Airport discretion (the “Option”).

The 2017 Automated Guideway Transit Final Report determined that an Automated Transit Network (ATN) would be the most appropriate AGT technology given the potential demand and characteristics of the market. An ATN system would provide a high-quality service compared to fixed-schedule, all-stop service. The specific technology to be used will be determined by the preferred proposer so actual ridership demand could vary depending upon the selected technology and operating conditions. **Proposers will ultimately be responsible for determining forecast demand based upon the specific technology and operating conditions selected to meet the overall project goals. During the PDA phase, it is expected that proposers will develop their own independent forecast. The purpose of this Ridership Update is to provide an updated estimate of potential demand for proposers to use for the first phase of the PDA Prefeasibility Report.**

To provide a base level of understanding for the future ridership, the two primary activity centers considered for this assessment are Mineta San José International Airport (Airport) and San José Diridon Station (Diridon Station). The preferred proposer may also choose to consider additional activity centers outlined in the previous report such as Downtown San José and North San José.

### 3. Mineta San José International Airport (Airport)

#### Description

Mineta San José International Airport (Airport) is one of the three commercial airports in the Bay Area. Figures are presented for 2019 to represent pre-pandemic airport activity which serves as a basis in estimating future activity. The 2020 FAA Terminal Area Forecast (TAF) projects that passenger enplanements will return to 2019 levels around the year 2024. The Airport is expected to keep up with this forecast due to its rapid growth trend prior to the pandemic, and its positive outlook for increased passenger demand.

In 2019, the Airport served 15.7 million passengers<sup>1</sup>, amounting to eighteen percent (18%) of all Bay Area air passenger traffic.<sup>2</sup> This is an increase in the Airport’s Bay Area air passenger share from fourteen percent (14%) in 2014. Approximately six percent of Airport passenger traffic is international traffic.<sup>3</sup> The Airport is located approximately two miles north of Downtown San José and is bordered by both the US-101 (Bayshore Freeway) and SR-87 (Guadalupe Freeway).

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<sup>1</sup> 2019 Facts and Figures, Mineta San José International Airport.

<sup>2</sup> In 2019, SFO served 57.5 million passengers (SFO December 2019 Comparative Traffic Report), OAK served 13.4 million passengers (Oakland International Airport Monthly Activity Report December 2019).

<sup>3</sup> Monthly Activity Report. Mineta San José International Airport. December 2019.

## Airport Passengers

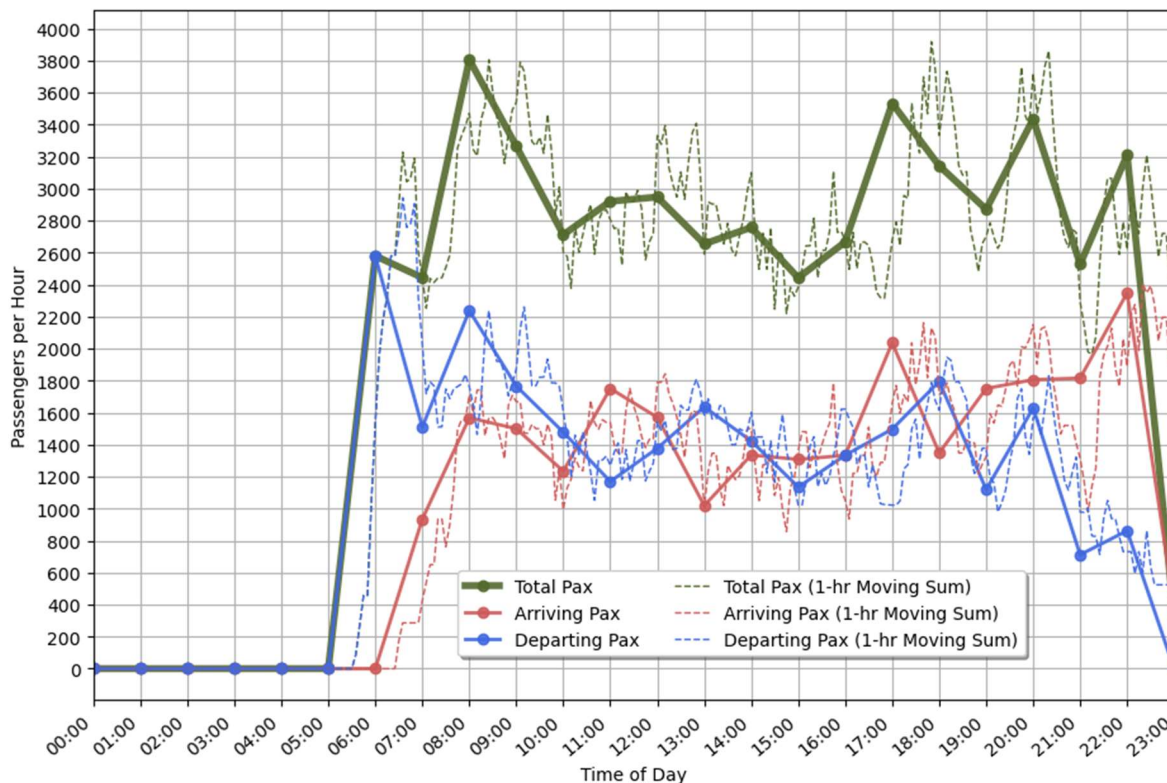
In 2019, the Peak Day – the day with the most passengers arriving/departing the Airport – was July 19<sup>th</sup>. On this day, 25,047 passengers arrived, and 25,262 passengers departed the Airport. As demand varies throughout the year, a Design Day has been identified that represents a reasonable level of demand for planning and design activities. Typically, the Design Day is the average weekday during the peak month in either July or August. On the Design Day in 2019, approximately 23,000 air passengers arrived, and 23,000 air passengers departed the Airport. (Passengers connecting between flights are excluded from this number.) On the Design Day, approximately 500 commercial flights served the Airport over the course of 17 hours each day (6:30 a.m. – 11:30 p.m.). The Design Day represents approximately 90% of the demand on the Peak Day and is used as a basis of the estimate of potential demand for the connector.

During the peak hours of operation (8:00 a.m. to 9:00 a.m. and 5:00 p.m. to 6:00 p.m.) on the Peak Day, the Airport served between 3,500 to 3,800 passengers per hour.<sup>4</sup> Figure 1 is a chart of arriving and departing passengers on the 2019 peak day.

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<sup>4</sup> OAG data, July 19<sup>th</sup>, 2019

Figure 1: Cumulative Airport Passengers Served, Peak Day (2019)<sup>5</sup>



There was a total number of 50,309 passengers (arriving plus departing) on the peak day. The greatest combined demand of departing and arriving passengers occurs:

- Between 8:00 a.m. and 9:00 a.m.: demand of 3,800 passengers/hour (arriving and departing), and
- Between 5:00 p.m. and 6:00 p.m.: demand of 3,500 passengers/hour (arriving and departing).

There was a total number of 25,047 passengers (arriving) on the peak day. The greatest demand of arriving passengers occurs:

- Between 11:00 a.m. and 12:00 p.m.: demand of 1,800 passengers/hour (arriving),
- Between 5:00 p.m. and 6:00 p.m.: demand of 2,000 passengers/hour (arriving), and
- Between 10:00 p.m. and 11:00 p.m.: demand of 2,400 passengers/hour (arriving).

There was a total number of 25,262 passengers (departing) on the peak day. The greatest demand of departing passengers occurs:

- Between 6:00 a.m. and 7:00 a.m. with a demand of 2,600 passengers/hour (departing), and
- Between 6:00 p.m. and 7:00 p.m. with a demand of 1,800 passengers/hour (departing).

<sup>5</sup> OAG data, July 19<sup>th</sup>, 2019

Passengers traveling through the Airport originate from, or are destined to, various locations throughout the Bay Area, as shown in Table 1. The mode of transportation used to access the Airport is shown in Table 2.

It is important to note that passenger access mode figures have not been updated from the original study due to a lack of new publicly available information. The original information is sourced from the 2014 Air Passenger Survey, completed by the airport. There have been significant changes in the Airport access modes with the adoption of ridesharing services which have likely reduced private auto access mode share. It is recommended that an updated Air Passenger Survey be completed to help understand how changes in both origin and destination locations and access mode have shifted over the intervening years.

**Table 1: Airport Passenger Origin and Destination Locations**

<b>Location</b>	<b>2017 Memo<sup>6</sup> Share of Airport Passengers (%)</b>
City of San José	36 %
Elsewhere in Santa Clara County	29 %
Santa Cruz County	9 %
Alameda County	6 %
San Mateo County	4 %
All Other Locations	16 %

**Table 2: Airport Passenger Access Mode**

<b>Access Mode</b>	<b>2017 Memo<sup>7</sup> Share of Airport Passengers (%)</b>
Private Auto	46 %
Rental Car	35 %
Taxi	9 %
Shuttle Van or Limo	5 %
Public Transit	1 %
Other	3 %

Passenger traffic is forecast to increase at the Airport, with forecasts up to the horizon year of 2040 provided in Table 3. A plot of passenger traffic growth from 2014 to 2040 indicates an annual demand increasing from approximately 9.7 million annual passengers in 2022, to approximately 29 million annual passengers in 2040. Figure 2 illustrates the projected growth estimate.

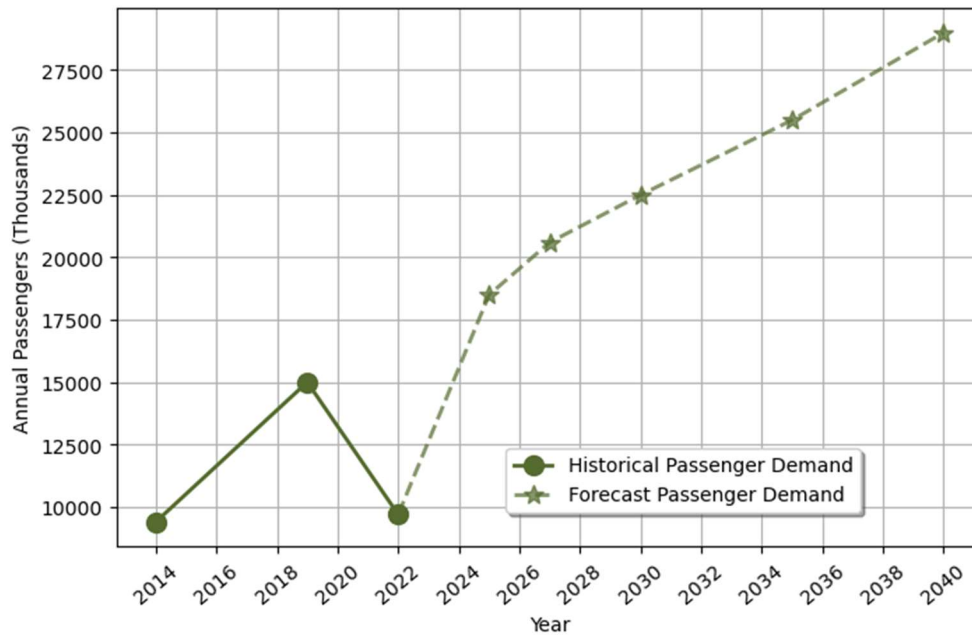
<sup>6</sup> 2014 Air Passenger Survey, Mineta San José Mineta International Airport.

<sup>7</sup> Mineta San José Mineta International Airport, 2015.

**Table 3: Airport Passenger Traffic Forecasts**

Year	Annual Passengers (millions)	Average Daily Passengers
Historic Passenger Demand <sup>8</sup>		
2014	9.4	26,000
2019	15.0	41,000
2022 <sup>9</sup>	9.7	27,000
Forecast Passenger Demand <sup>10</sup>		
2025	18.5	50,000
2027	20.6	56,000
2030	22.5	62,000
2035	25.5	70,000
2040	29.0	80,000

**Figure 2: Airport Passenger Traffic**



<sup>8</sup> Mineta San José Mineta International Airport, 2022.

<sup>9</sup> Monthly Activity Report, Mineta San José Mineta International Airport, October 2021 to September 2022.

<sup>10</sup> Mineta San José Mineta International Airport, 2022.

## Airport Employees

The number of airport employees in 2019 is shown in Table 4:

**Table 4: 2019 Airport On-Site Employees**

Location	2017 Memo Employees	2022 Update Employees
Airport (City of San José) <sup>11</sup>	187	216
Airlines, concessions, etc.	2,913	5,358
<b>Total<sup>12</sup></b>	<b>3,100</b>	<b>5,574</b>

Employees live predominately in San José and surrounding Santa Clara County, as shown in Table 5. Employees primarily drive to the Airport, shown in Table 6. Since the previous study, there has been a shift from private auto to transit access modes for employees, potentially caused by a focus on sustainable transportation in recent years and increasing travel costs.

**Table 5: Airport On-Site Employee Home Locations<sup>13</sup>**

Home Location	2017 Memo Share of Airport Employees (%)	2022 Update Share of Airport Employees (%)
City of San José	57 %	45%
Santa Clara County (Excluding San José)	19 %	17%
Santa Cruz County	2 %	2%
Alameda County	9 %	11%
San Mateo County	3 %	4%
All Other Locations	10 %	21%

**Table 6: Airport On-Site Employee Access Mode<sup>14</sup>**

Access Mode	2017 Memo 2015 Share of Employees at the Airport (approx. %)	2022 Update 2019 Share of Employees at the Airport (approx. %)
Private Auto	95 %	81%
Transit	5 %	19%

<sup>11</sup> Comprehensive Annual Financial Report. Mineta San José Mineta International Airport. 2019.

<sup>12</sup> Mineta San José Mineta International Airport, 2022.

<sup>13</sup> Employee Home Locations by Zip Code, Mineta San José Mineta International Airport, 2022.

<sup>14</sup> Mineta San José Mineta International Airport, 2022.

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## Transit Access

VTa operates Route 60 (Airport Flyer) bus service between Santa Clara Caltrain Station, Airport, Metro/Airport VTA Light Rail station and Milpitas Transit Center. This service operates every 15 minutes starting at approximately 5:30 a.m. and ending at approximately 11:30 p.m. In 2019, this route served approximately 1,800 passengers daily during weekdays.<sup>15</sup> For VTA Route 60 in 2022, 317 average daily weekday boardings/alightings occurred at the San José Airport Terminal B stop.<sup>16</sup>

VTa's Light Rail system currently provides service to the Metro/Airport Light Rail station on the North First Street corridor via the Green and Blue lines. The Green Line provides direct service from Diridon Station to the Metro/Airport Light Rail station, located approximately one mile (walking distance) from the Airport terminals. The Green Line operates approximately every 15 minutes during peak hours and every 30 minutes during off-peak hours. The Blue Line operates approximately every 20 minutes during peak hours and every 30 minutes during off-peak hours. On an average weekday, the Metro/Airport station sees approximately 600 passenger boardings.<sup>17</sup> The current VTA light rail system is shown in Appendix A.

## 4. San José Diridon Station (Diridon Station)

### Transit Services

Diridon Station is a regional transit hub located on the western edge of Downtown San José, serving as a key connection point between several public transit services.

### Altamont Corridor Express (ACE)

ACE currently provides commuter rail service connecting Diridon Station in San José and Robert J. Cabral Station in Stockton. Today, ACE runs 4 westbound trains in the morning from Stockton and 4 eastbound trains in the afternoon from San José (4 daily round trips).<sup>18</sup>

The 2018 State Rail Plan 2040 Vision includes improved rail service for ACE. By 2040, it is anticipated that there will be 6 additional daily round trips (for a total of 10 weekday daily round trips) with speeds up to 125 mph. 15-minute to half-hour frequencies are anticipated during peak periods.<sup>19</sup>

### Capitol Corridor

Amtrak's Capital Corridor is a passenger rail service that operates between San José and the Sacramento Region. Today, Capital Corridor runs 6 trains eastbound from Diridon Station and 6 trains westbound from Sacramento with the destination of Diridon Station (6 daily round trips).

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<sup>15</sup> Santa Clara Valley Transportation Authority, 2019.

<sup>16</sup> Santa Clara Valley Transportation Authority, 2022.

<sup>17</sup> Santa Clara Valley Transportation Authority, December 2019.

<sup>18</sup> Altamont Corridor Express, 2022.

<sup>19</sup> 2018 State Rail Plan, Caltrans, 2018.



The Capital Corridor Vision Plan, published in 2014, outlines the long-term plan for improvements to this route including electrification, increasing speeds to 150 mph, and including service frequency.<sup>20</sup>

### Other Amtrak Services

Diridon is also served by the Coast Starlight, an Amtrak long-distance intercity rail service. This service is provided once daily in each direction between Los Angeles and Seattle.

### Bay Area Rapid Transit (BART)

In 2020, the first phase of BART Silicon Valley was completed and opened to the public with the completion of the Berryessa/North San José Station. Phase II of the BART Silicon Valley project will extend the BART system further to Downtown San José, Diridon Station and Santa Clara Station, with revenue service forecasted to begin in 2030.<sup>21</sup>

### Caltrain

Caltrain currently provides commuter rail service north from Diridon Station to San Francisco. Limited service is also provided south to Gilroy.

Today, during peak hours on weekdays, five trains are operated per hour in each direction between San José and San Francisco. The current Caltrain peak period service plan is shown in Table 7.

**Table 7: Current Caltrain Peak Period Service Plan<sup>22</sup>**

Service Type	Peak Hour Frequency (trains per hour per direction)
Limited	3
Baby Bullet	2
TOTAL	5

By 2040, Caltrain will have completed the Caltrain Peninsula Corridor Electrification Project (PCEP) and will operate an all-electric fleet between San José and San Francisco. In San Francisco, Caltrain service is planned to be extended to the Salesforce Transit Center.

In 2019, Caltrain released a Business Plan to document its 2040 Service Vision for the corridor with express and local services. The 2040 Service Vision Caltrain is shown in Appendix B and is summarized in Table 8.

<sup>20</sup> 2014 Capital Corridor Vision Plan, 2014.

<sup>21</sup> VTA's BART Silicon Valley Phase II, VTA

<sup>22</sup> Peninsula Corridor Electrification Project Draft Environmental Impact Report, Appendix I, Ridership Technical Memorandum. Peninsula Corridor Joint Powers Board, February 2014.

**Table 8: 2040 Service Vision Peak Period Service Plan<sup>23</sup>**

Service Type	Peak Hour Frequency (trains per hour per direction)
Express	4
Local	4
TOTAL	8

Caltrain passengers use multiple access modes to reach a Caltrain station. Caltrain passenger access mode share in 2013 is shown in Table 9. It is recommended that an updated Caltrain Passenger Survey be completed to understand how access mode has shifted over the intervening years.

**Table 9: Caltrain Access Modes<sup>24</sup>**

Access Mode	Percent of Total Boardings
Car	23 %
Walk	36 %
Taxi	1 %
Transit/Shuttles	26 %
Bike	14 %

## California High-Speed Rail Project

The California High-Speed Rail Project will construct a high-speed rail line from San Francisco to Los Angeles/Anaheim via San José, including service to San José Diridon Station. In 2040, 15,450 daily boardings and 15,450 daily alighting's are forecasted for high-speed rail at Diridon Station. For trips to/from Diridon Station for high-speed rail, it is estimated that in 2040, 2,000 daily trips will be made by parking a car off-site and 2,300 daily trips will be made by a rental car shuttle.<sup>25</sup>

San José will be incorporated into high-speed rail during the phase 1 system that connects San Francisco and Merced to Anaheim. Silicon Valley to the Central Valley (San Francisco to Bakersfield) is planned for a 2029 opening year and San Francisco to Anaheim is planned for a 2033 opening year. Phase 1 of the high-speed rail system is shown in Appendix C. Table 10 shows the service levels contemplated for Phase 1 for Diridon Station with six hours of peak operation and twelve hours of off-peak operation.

<sup>23</sup> Peninsula Corridor Electrification Project Draft Environmental Impact Report, Appendix I, Ridership Technical Memorandum. Peninsula Corridor Joint Powers Board, February 2014.

<sup>24</sup> 2013 Caltrain Intercept Survey, Fehr & Peers, 2013

<sup>25</sup> Final Environmental Impact Report, San Francisco to San José Project Section, Section 3.2, California High-Speed Rail Authority, June 2022.

**Table 10: Planned High-Speed Rail Service Levels at Diridon Station<sup>26</sup>**

High-Speed Rail System Implementation Stage	Peak Rail Service (trains per day)	Off-Peak Rail Service (trains per day)
Silicon Valley to Central Valley (2029)	12	10
Phase 1 San José - Los Angeles (2033)	12	0
Phase 1 San José - Merced (2033)	6	10

The phased nature of the construction of the high-speed rail system will designate Diridon Station as a high-speed rail terminus before service is extended to San Francisco.

### Diridon Station Area Land Use

In 2014, the City of San José approved the Diridon Station Area Plan (DSAP). In 2021, the City Council approved a development agreement with Google for the Downtown West project. This development agreement would address important community needs including:

- Affordable housing and anti-displacement measures,
- Economic and educational opportunities,
- Improved parks and open spaces; and
- Significant transportation / infrastructure improvements in the area

The geographic extents of the Diridon Station Area have been expanded since the previous study to include the full extent of DSAP. The geographic extents, as considered for this study, are shown in Appendix D. Table 11 provides population and employment estimates within the Diridon Station Area assuming full buildout of DSAP by 2035. Table 12 provides the same information but assumes 80% buildout of DSAP by 2035.

<sup>26</sup> California High-Speed Rail 2020 Business Plan, Ridership and Revenue Forecasting, California High-Speed Rail Authority, January 2020.

**Table 11: Population and Employment Estimates within Diridon Station Area DSAP Full Buildout**

	2015 Previous Study Estimates <sup>27</sup>		2022 Current Study Estimates		
	2015	2030	2015 <sup>28</sup>	2020 <sup>29</sup>	2035 <sup>30</sup>
Population	3,521	4,979	5,631	6,132	43,340
Employment	5,753	6,966	14,240	17,174	76,500

**Table 12: Population and Employment Estimates within Diridon Station Area DSAP 80% Buildout**

	2015 Previous Study Estimates <sup>31</sup>		2022 Current Study Estimates		
	2015	2030	2015 <sup>32</sup>	2020 <sup>33</sup>	2035 <sup>34</sup>
Population	3,521	4,979	5,631	6,132	35,144
Employment	5,753	6,966	14,240	17,174	61,500

## 5. Estimate of Activity Center-Based Trips in 2040

The market assessment is an estimate of possible daily trips that will be made between the two key activity centers of Diridon Station and the Airport. This estimate is made for the forecast year of 2040. Assessment is conducted using several datasets. These datasets include the airport historical data and forecasts and outputs from the most recent MTC regional travel demand model. Several assumptions are made in estimating 2040 daily trips.

- ***Mineta San José Airport***
  - 2040 air passenger traffic numbers, as forecasted by the FAA.
  - The geographic distribution of air passengers' origin/destination locations are assumed to be similar to the current distribution.
  - The geographic distribution of Airport employee origin/destination locations are assumed to be similar to the current distribution.

<sup>27</sup> MTC Travel Demand Model, Metropolitan Transportation Commission, 2010.

<sup>28</sup> US Census ,2015. LEHD, 2015.

<sup>29</sup> US Census, 2020. LEHD, 2019.

<sup>30</sup> MTC Travel Demand Model, Metropolitan Transportation Commission, 2021. Amended Diridon Station Area Plan, 2021. Downtown West Mixed-Use Plan Final Environmental Impact Report, 2021.

<sup>31</sup> MTC Travel Demand Model, Metropolitan Transportation Commission, 2010.

<sup>32</sup> US Census ,2015. LEHD, 2015.

<sup>33</sup> US Census, 2020. LEHD, 2019.

<sup>34</sup> MTC Travel Demand Model, Metropolitan Transportation Commission, 2021. Amended Diridon Station Area Plan, 2021. Downtown West Mixed-Use Plan Final Environmental Impact Report, 2021.

- The number of Airport employees are expected to scale proportionally with growth in air passenger traffic.
- Airport employees will make one trip to and one trip from the airport daily.
- The time-of-day profile of air passenger traffic is assumed to remain similar to current profile of activity.

## **Airport Passenger Total Trip Origin/Destination Locations**

In 2040, 40,000 air passengers per day are expected to travel to the Airport and 40,000 air passengers per day are expected to travel from the airport. The origin/destination of these trips are shown in Appendix E.

## **Employee Airport Employee Home Locations**

In 2040, 11,000 employees will make a trip to/from the airport daily. The origin/destinations of these trips are shown in Appendix F.

## **6. High-Speed Rail to Mineta San José Airport Trips in 2040**

There is potential for high-speed rail to serve as a feeder from the Central Valley to airports in the Bay Area and Southern California, including Mineta San José Airport (via the proposed connector). A high-level estimate of the potential for high-speed rail to increase Central Valley air travel demand was determined in the previous study. This methodology is updated and adapted for this updated study.

The use of this analysis is cautioned. It is speculative and was completed to understand the order of magnitude of potential demand if high-speed rail significantly changes air travel design patterns by improving connections between the Central Valley and major airports. A detailed market assessment of the implications of high-speed rail to the Mineta San José Airport via the proposed connector has been completed.

Central Valley residents and visitors currently use the relatively small airports in Fresno (FAT) and Merced (MCE) or must travel to other California airports including Mineta San José Airport, Sacramento (SMF), San Francisco (SFO), Burbank (BUR), Los Angeles (LAX) or others. Current demand at the FAT and MCE airports are compared to the metropolitan area populations in Table 13 below.

**Table 13: Existing Central Valley Airport Activity**

<b>Airport</b>	<b>2019 Metro Area Population<sup>35</sup></b>	<b>2019 Annual Air Passengers<sup>36</sup></b>	<b>Ratio: Annual Air Passengers / Metro Area Population</b>
Merced (MCE)	277,000	13,632	0.05
Fresno (FAT)	998,000	1,933,214	1.94
Visalia (VIS)	466,000	0	0
<b>TOTAL</b>	<b>1,741,000</b>	<b>1,946,846</b>	<b>1.12</b>

Table 14 provides the ratio annual air passenger to metro area populations for several urban areas in the United States. Compared to the results in Table 13, air travel demand at local airports is relatively low in the Central Valley. This may be the result of the local economic and socio-economic conditions, but is also likely due in part to the relatively limited commercial passenger service at the local airports. In other words, some Central Valley air travel demand is being accommodated at other airports.

San Mineta San José Airport could benefit from attracting additional demand from the Central Valley via fast (approximately 60 minutes to Fresno) and reliable high-speed rail link combined with an attractive airport connector to Diridon Station. To estimate the potential air trips from the Central Valley, air passenger traffic was analyzed in 15 similarly sized U.S. metropolitan areas. An annual air passenger to metro area population ratio is calculated in Table 14.

**Table 14: 2019 Air Trips vs Population, by Metro Area**

<b>Metro Area</b>	<b>Metro Area Population<sup>37</sup></b>	<b>Annual Air Passengers<sup>38</sup></b>	<b>Ratio: Annual Air Passengers / Metro Area Population</b>
Pittsburgh, PA	2,317,913	9,431,894	4.07
Portland, OR	2,492,479	19,594,816	7.86
San Antonio, TX	2,550,147	10,045,960	3.94
Sacramento, CA	2,363,654	12,908,826	5.46
Kansas City, MO	2,161,639	11,518,838	5.33
Cleveland, OH	2,049,028	9,789,082	4.78
Nashville, TN	1,933,455	17,871,308	9.24
Milwaukee, WI	1,575,179	6,747,146	4.28
Memphis, MEM	1,346,045	4,636,884	3.44
Louisville, KY	1,265,108	4,087,050	3.23

<sup>35</sup> Annual Estimates of the Resident Population, 2019, United States Census

<sup>36</sup> Passenger Boarding (Enplanement) and All-Cargo Data for U.S. Airports, Federal Aviation Administration, 2019.

<sup>37</sup> Annual Estimates of the Resident Population, 2019, United States Census.

<sup>38</sup> Passenger Boarding and All-Cargo Data for U.S. Airports, Federal Aviation Administration, 2019.

Milwaukee, Memphis, and Louisville were considered as benchmarks for potential air travel demand in the Central Valley with improved access to major airports. The average trip making rate across these three metro areas is around 3.7. annual air passengers per metro area resident. From this rate, potential demand for air travel can be estimated for the three study Central Valley metro areas in Table 15.

**Table 15: Potential Central Valley Airport Activity**

<b>Airport</b>	<b>2040 Metro Area Population<sup>39</sup></b>	<b>Potential Annual Air Passengers</b>	<b>Potential Average Daily Boardings</b>
Merced (MCE)	346,000	1,280,000	1,800
Fresno (FAT)	1,171,000	4,333,000	6,000
Visalia (VIS)	552,000	2,042,000	2,800
<b>TOTAL</b>	<b>2,069,000</b>	<b>7,655,000</b>	<b>10,600</b>

The above potential demand for air travel could be potentially served by high-speed rail service linking Central Valley cities to flights at major airports along the future high-speed rail network. Table 16 shows the relative amount of 2019 air passengers at airports that will in the future have high-speed rail connections to the Central Valley.

**Table 16: Airports with Future Transit Connections to High-Speed Rail**

<b>Airport</b>	<b>Existing Average Daily Boardings<sup>40</sup></b>	<b>% Airport Passenger Share</b>
San Francisco (SFO)	76,107	34 %
San José (SJC)	21,063	9 %
Burbank (BUR)	8,188	4 %
Los Angeles (LAX)	117,641	52 %
Fresno (FAT)	2,648	1 %
<b>TOTAL</b>	<b>243,620</b>	<b>100 %</b>

It is assumed that increased accessibility to convenient flights will induce additional volumes of air trips from the Central Valley to airports on the high-speed rail network proportional to these airport's existing market share.

From this information, it is estimated that approximately 2,000 daily Central Valley air passengers (1,000 arriving and 1,000 departing) could potentially use high-speed rail and the proposed airport connector to reach Mineta San José Airport.

<sup>39</sup> State Population Projections (2010-2060), State of California Department of Finance

<sup>40</sup> Passenger Boarding (Enplanement) and All-Cargo Data for U.S. Airports, Federal Aviation Administration, 2019.

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## 7. Potential Ridership Evaluation

This section assesses the rider demand of the connector serving the air passengers and Airport employees. This analysis is applied to the base Connector Network connecting the Airport to Diridon Station with stations at:

- Airport Economy Lot 1 (Long-Term Parking)
- Airport Terminal A
- Airport Terminal B / Consolidated Rent-A-Car Facility (ConRAC)
- Diridon Station

There are two primary trip categories of market potential.

- **Airport-Related Trips**
  - **Airport Passengers**
  - **Airport Employees**
  - **Intra-Airport Trips**
- **HSR-Related Trips**
  - **HSR ↔ San José Airport Flights**
  - **HSR ↔ San José Airport Parking**
  - **HSR ↔ San José Airport ConRAC**

### Airport Passengers

The number of Airport passengers that would use the Connector network to access the airport would be determined by two factors: forecasted airport growth (in terms of passengers) and current transit mode share. Forecasts for projected growth to horizon year 2040 have been provided by the City of San José<sup>41</sup>.

Currently, the transit service serving the Airport is the VTA route 60 (Airport Flyer) bus line serving approximately primary 1,800 passengers daily. Table 17 shows the 2019 transit mode share of air passengers.

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<sup>41</sup> Ph.2 Terminal B South Concourse Extension Environmental Assessment, City of San José, 2021.



**Table 17: Airport Transit Mode Share of Air Passengers**

<b>Airport:</b>	<b>2017 Memo – Baseline 2014 SJC</b>	<b>2022 Update – Baseline 2019 SJC</b>	<b>2022 Update – Forecast 2040 SJC</b>
Daily Air Passengers	25,321	41,000	80,000
Daily Transit-to/from-Airport Trips	1,155	317 <sup>42</sup>	N/A
Air Passenger Transit Mode Share	4.5 %	0.8 %	N/A

Note that transit mode share in 2019 is significantly less than in 2014. This could be caused by a variety of reasons. In 2014, the now discontinued Route 10 Airport Flyer provided a dedicated transit service to the airport. This route was merged into VTA Route 60 in December 2019 potentially due to decline ridership. VTA Route 60 also serves riders not making trips to/from the Airport. This is currently compounded by the effects of the Covid-19 pandemic in which ridership has yet to fully recover.

However, in 2040, the Connector can reasonably certainly to have significantly more ridership than the current existing Airport Flyer ridership and with a lower bound of the previous 2014 Airport Flyer ridership.

Combining the forecasted airport growth and the Connector mode share scenario, a range of airport related Connector ridership is shown in Table 18:

**Table 18: 2040 Connector Potential Mode Share of Air Passengers**

<b>Annual Airport Growth Rate</b>	<b>2040 Daily Air Passenger</b>	<b>2019 Transit Mode Share (0.8%)</b>	<b>2014 Transit Mode share (4.5%)</b>	<b>Connector Potential Mode Share</b>		
				<b>4.5 %</b> ~ 2014 SJC Airport Flyer Mode Share	<b>5 %</b> Lower Range of Potential Connector Transit Mode Share	<b>7 %</b> Higher Range of Potential Connector Transit Mode Share
No Growth (2019 Traffic)	41,000	330	1,850	1,850	2,050	2,870
SJC Terminal Forecasts	80,000	640	3,600	<b>3,600</b>	4,000	<b>5,600</b>

Therefore, it is expected that the range of air passenger Connector trips is to fall between **3,600 and 5,600 daily airport passengers**.

<sup>42</sup> Ridership by Stop, Valley Transportation Authority, 2022.

## Airport Employees

The number of Airport employees that would use the Connector network to access the airport would be determined by two factors: forecasted airport growth (in terms of passengers) and employee transit mode share. Forecasts for projected growth to horizon year 2040 have been provided by the City of San José<sup>43</sup>. Table 19 shows the 2019 transit mode share of Airport Employees.

**Table 19: Airport Employee Trips**

<b>Airport:</b>	<b>2017 Memo – Baseline 2014 SJC</b>	<b>2022 Update – Baseline 2019 SJC</b>	<b>2022 Update – Forecast 2040 SJC</b>
Daily Airport Employee Trips	6,200	11,148	22,000
Airport Employee Transit Mode Share	5%	19%	N/A

In 2019, the transit mode share of Airport employees is 19%. This mode share was used as the upper bound for Connector ridership for employees. As a lower bound, it is anticipated that transit mode share of Airport employees is lower matching the 2014 mode share figure of 5%

Therefore, it is expected that the range of Airport employee Connector trips is to fall between **1,100 to 4,200 daily employee trips**.

## Intra-Airport Trips

Potential Connector demand is also considered for intra-airport passenger trips. Currently, there are two inter-terminal shuttle routes that serve intra-airport trips: Inter-terminal and Economy Lot 1. The Inter-terminal route serves routes between Terminal A and Terminal B while the Economy Lot 1 route serves Terminal A, Terminal B, and Economy Lot 1. Riders going between terminals may choose to board either route.

Table 20 shows the 2022 ridership figures for these intra-airport routes. 2040 intra-airport ridership is forecasted by assuming that ridership scales proportionally to air passenger forecasts.

**Table 20: 2022 Daily Intra-Airport Trips<sup>44</sup>**

<b>Intra-Airport Route</b>	<b>2022 Update 2022 Daily Riders</b>	<b>2022 Update 2040 Daily Riders</b>
Inter-terminal Route	800 – 2,600	2,200 – 7,200
Economy Lot 1	700 – 2,900	2,000 – 8,000
<b>Intra-Airport Total</b>	<b>1,500 – 5,500</b>	<b>4,200 – 15,200</b>

<sup>43</sup> Ph.2 Terminal B South Concourse Extension Environmental Assessment, City of San José, 2021.

<sup>44</sup> Mineta San José Mineta International Airport, 2022.

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It is assumed that the proposed Connector will serve all intra-airport trips serving **4,200 - 15,200 daily passengers**.

### HSR ↔ San José Airport Flights

The Connector linking the Airport with Diridon Station would provide a connection between flights and the proposed California high-speed rail system. In Section 6, 2,000 trips (to/from the Airport) would be made for this purpose. However, with the limitations discussed in the section, this figure should be taken as a higher bound.

It is assumed that Connector mode share for this market would be 100 percent. Between **1,500 and 2,000 daily passengers** can be expected to make this connection via the Connector.

### HSR ↔ San José Airport Parking

The Airport and high-speed rail at Diridon Station would serve complementary roles as high-speed rail passengers could potentially use existing parking facilities at the Airport. In Section 4, it is forecasted that 2,000 daily high-speed rail trips to/from Diridon Station will be made with off-site parking.

It is assumed that 30 to 50 percent of off-site parking high-speed rail trips to/from Diridon Station would be served by Airport parking and the Connector. Between **600 and 1,000 daily passengers** are expected to use the Connector to connect between Airport parking facilities and high-speed rail.

### HSR ↔ San José Airport ConRAC

High-speed rail passengers could potentially use existing rental car facilities at the Airport before/after high-speed rail trips to/from Diridon Station. In Section 4, it is forecast that 2,300 daily high-speed rail trips to/from Diridon Station are using rental car shuttles.

It is assumed that 30 to 50 percent of rental car high-speed rail trips to/from Diridon Station would be served by the Airport ConRAC and the Connector. Between **700 and 1,200 daily passengers** would be expected to use the Connector to connect between Airport rental car facilities and high-speed rail.

## Ridership Summary

Tables 21, 22, and 23 shows the anticipated Connector trip demand for the Connector network between Diridon Station and the Airport for Airport-Related Trips, HSR-Related Trips, and All Trips, respectively.

**Table 21: 2040 Base Connector Network Daily Trip Demand, Airport-Related Trips**

Potential Daily Connector Ridership	2017 Memo Year 2030	2022 Update Year 2040
Air Passengers	1,700 – 3,300	3,600 – 5,600
Airport Employees	400 – 900	1,100 – 4,200
Intra-Airport Trips	11,100 – 12,300	4,200 – 15,200
<b>Total Daily Connector Airport-Related Trips</b>	<b>13,200 – 16,500</b>	<b>8,900 – 25,000</b>

**Table 22: 2040 Base Connector Network Daily Trip Demand, HSR-Related Trips**

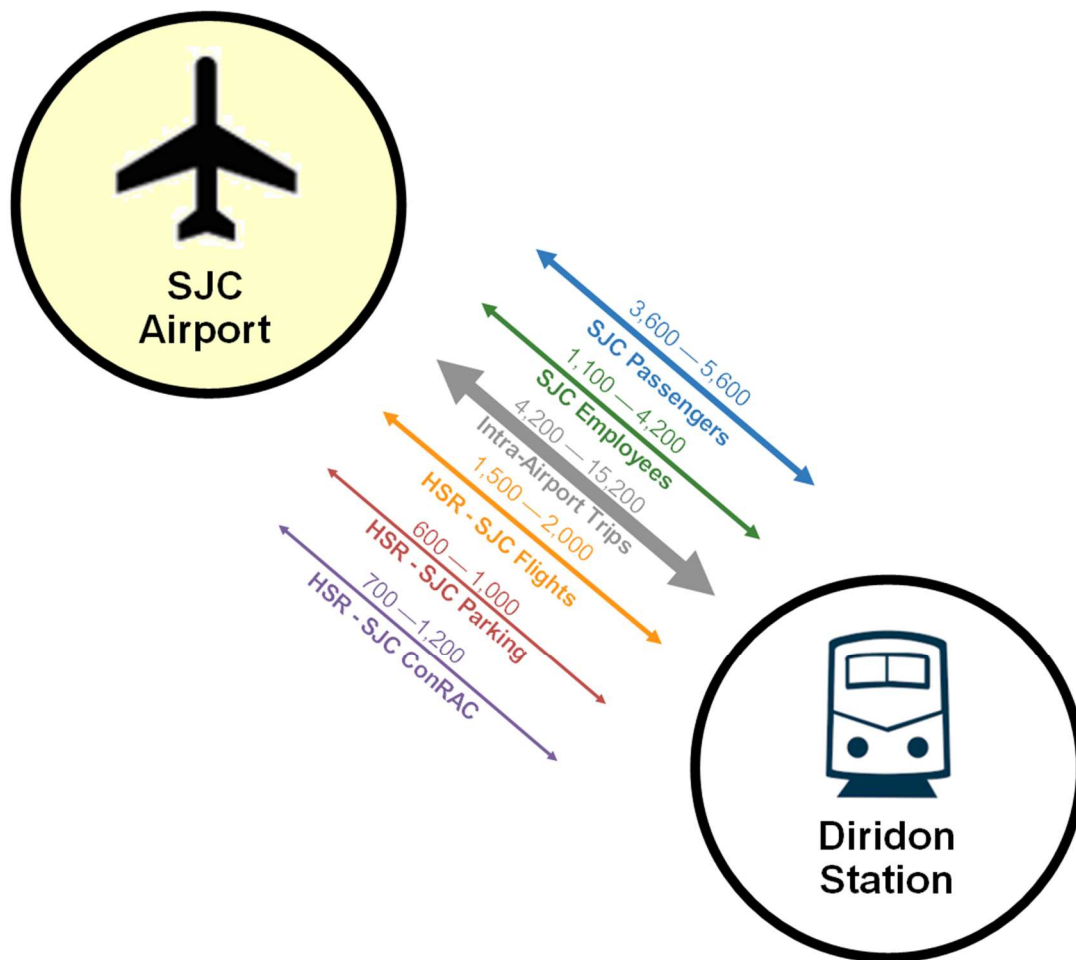
Potential Daily Connector Ridership	2017 Memo Year 2030	2022 Update Year 2040
HSR $\leftrightarrow$ SJC Flights	1,600 – 2,700	1,500 – 2,000
HSR $\leftrightarrow$ SJC Parking	2,200 – 3,600	600 – 1,000
HSR $\leftrightarrow$ SJC ConRAC	800 – 1,300	700 – 1,200
<b>Total Daily Connector HSR-Related Trips</b>	<b>4,600 – 7,600</b>	<b>2,800 – 4,200</b>

**Table 23: 2040 Base Connector Network Daily Trip Demand, All Trips**

Potential Daily Connector Ridership	2017 Memo Year 2030	2022 Update Year 2040
Air Passengers	1,700 – 3,300	3,600 – 5,600
Airport Employees	400 – 900	1,100 – 4,200
Intra-Airport Trips	11,100 – 12,300	4,200 – 15,200
HSR $\leftrightarrow$ SJC Flights	1,600 – 2,700	1,500 – 2,000
HSR $\leftrightarrow$ SJC Parking	2,200 – 3,600	600 – 1,000
HSR $\leftrightarrow$ SJC ConRAC	800 – 1,300	700 – 1,200
<b>Total Daily Connector Trips without Intra-Airport Trips</b>	<b>6,700 – 11,800</b>	<b>7,500 – 14,000</b>
<b>Total Daily Connector Trips with Intra-Airport Trips</b>	<b>17,800 – 24,100</b>	<b>11,700 – 29,200</b>

Figure 3 depicts the potential average daily ridership of the proposed Connector.

**Figure 3: Potential Average Daily Ridership**



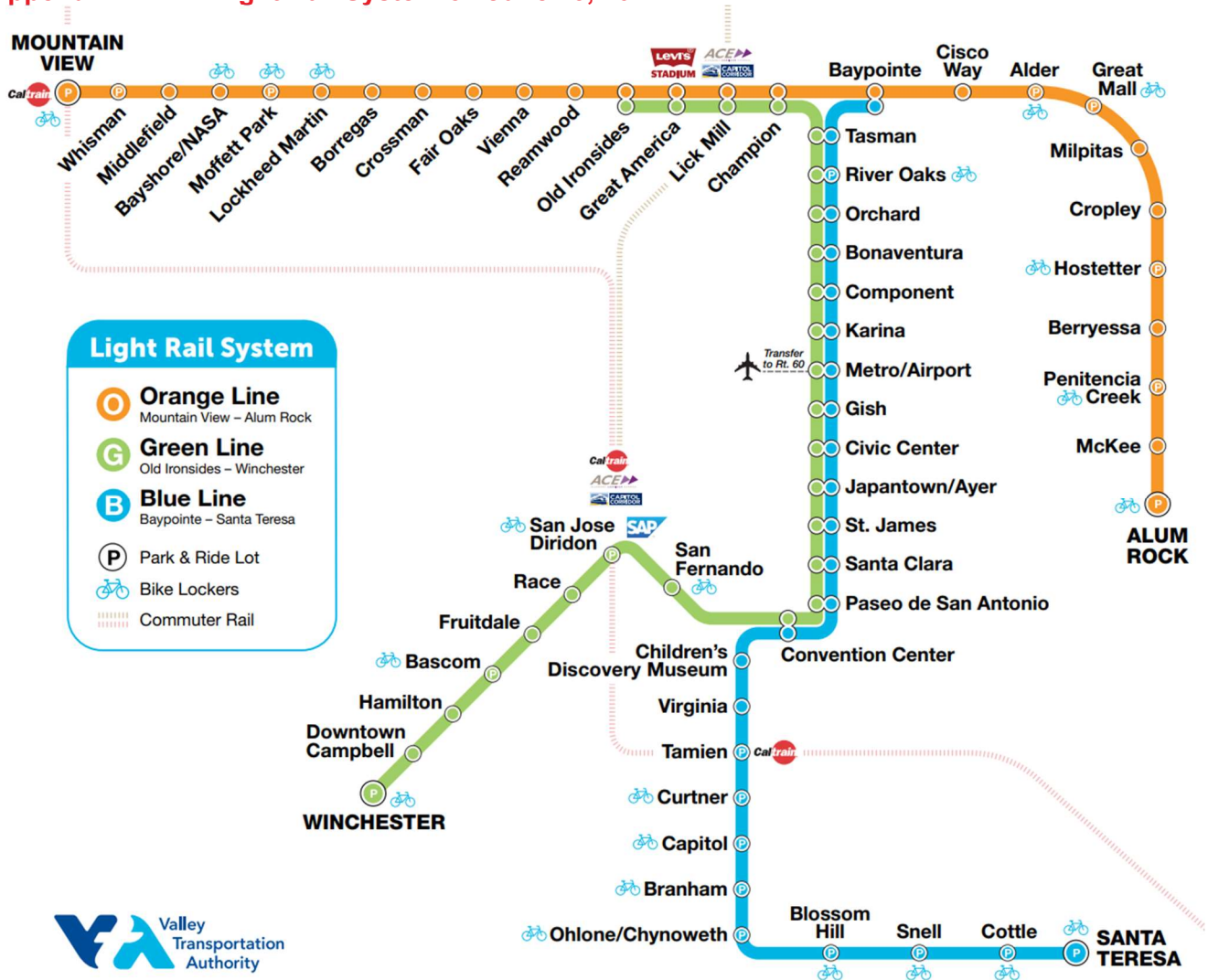
### Connector Peak Capacity

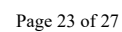
To estimate the potential peak hour demand for a link in the Connector, the arrival/departure time profile of air passengers is considered. In Section 3, and shown in Figure 1, the total number of daily passengers (arriving and departing) is 50,309 passengers with the greatest demand being around 3,800 passengers/hour.

With this information, it could be estimated that 7.5 percent of passenger demand occurs during the peak hour. It is assumed that this applies to all potential daily Connector markets (e.g., passengers, employees, HSR markets). It is also assumed that half of passenger demand is arriving at the Airport while half the demand, is departing the airport. With these assumptions, it is estimated that during the peak hour for the Connector, 3.5 percent of the potential daily Connector ridership will occur in a link in each direction.

The largest peak hourly demand is estimated to be **400 – 1000** passengers/hour.

## Appendix A: VTA Light Rail System on June 13, 2022



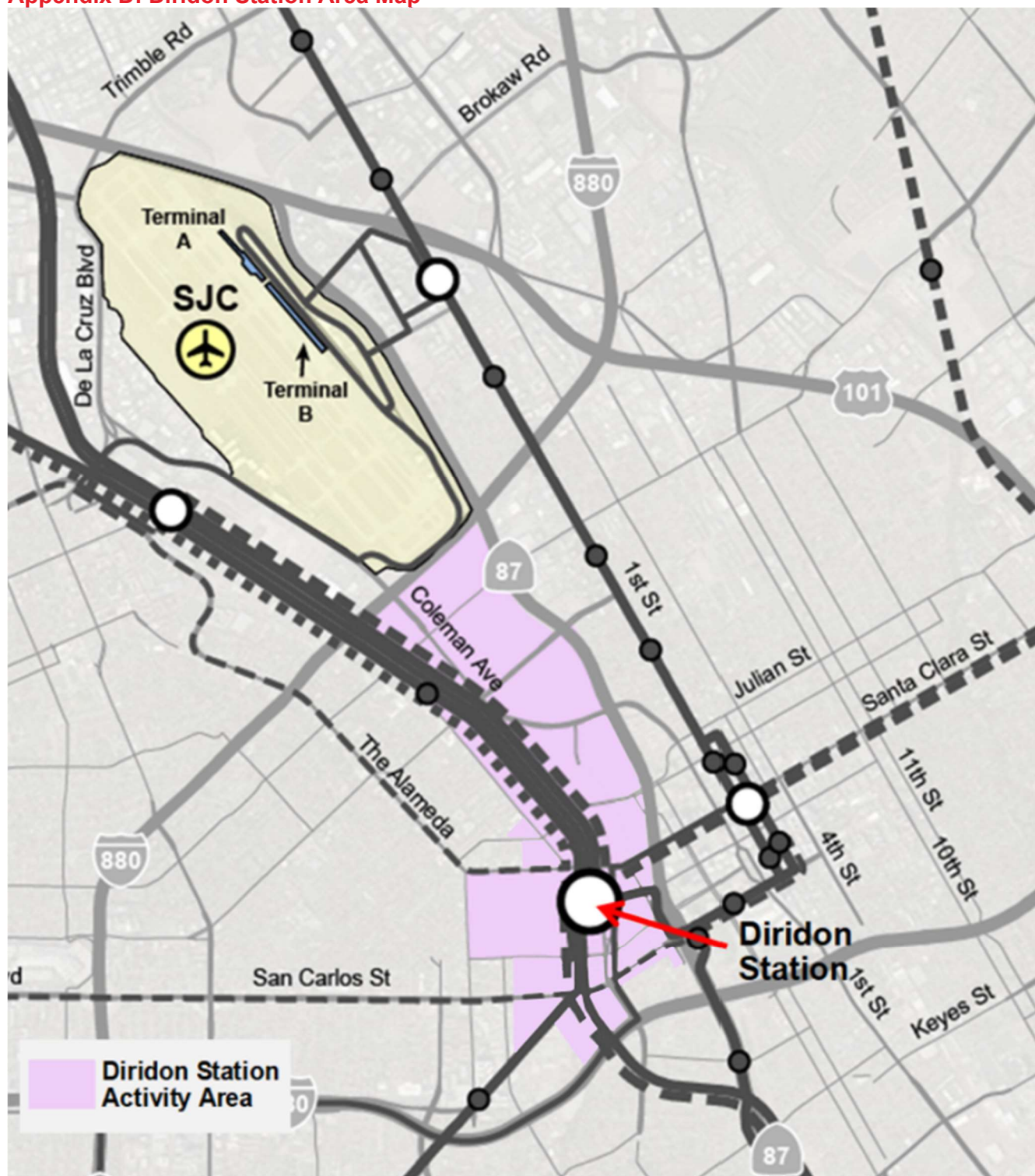


## Appendix C: California High-Speed Rail Phase 1

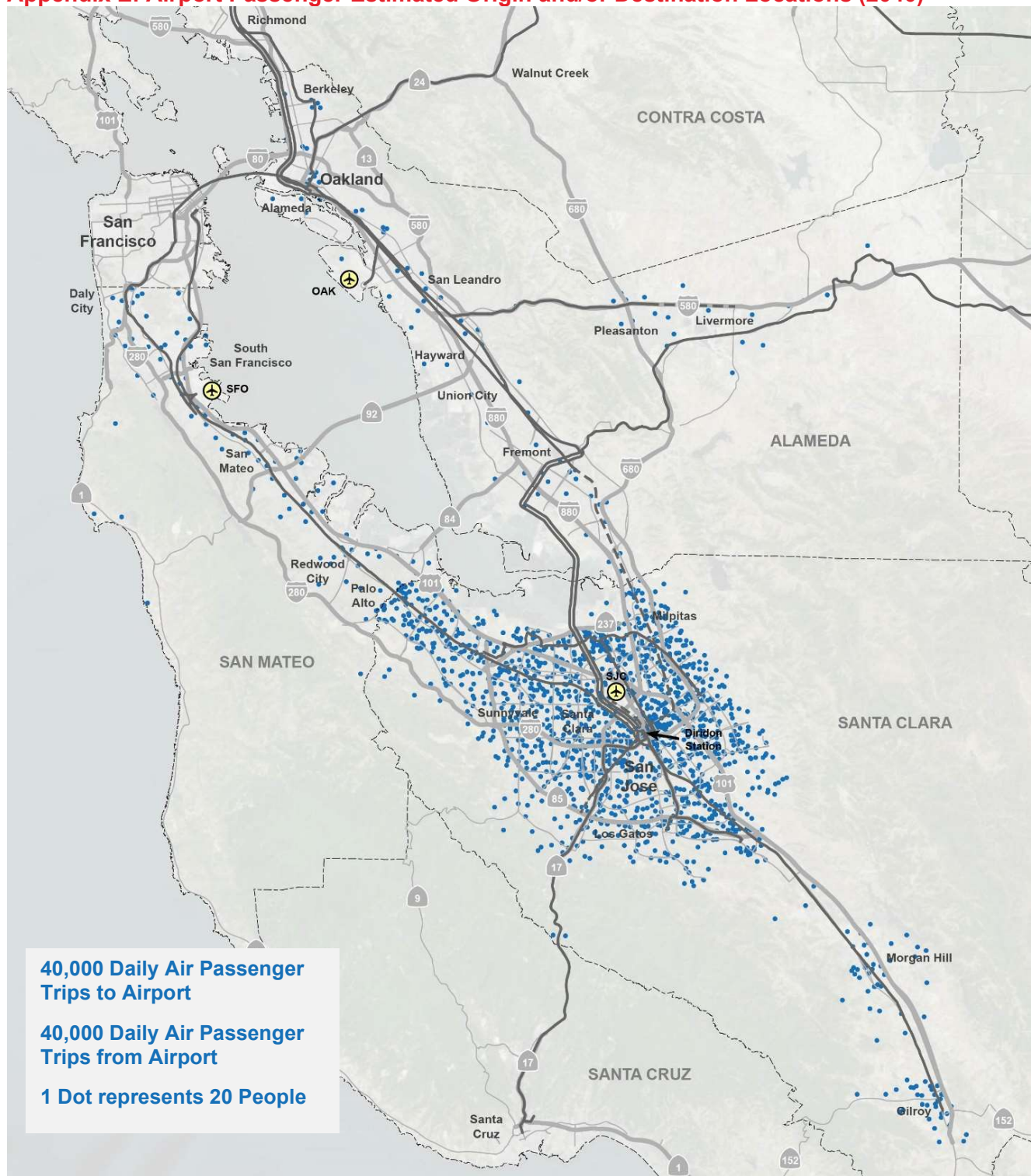




## Appendix D: Diridon Station Area Map



## Appendix E: Airport Passenger Estimated Origin and/or Destination Locations (2040)





## Appendix F: Estimated Airport Employee Home Locations (2040)

